

NOTES ON THE FLORA OF GLACIER NATIONAL PARK,
MONTANA

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SINCE the publication of Standley's Flora of Glacier National Park¹ there have been seventy supplementary species and varieties added by various collectors,² bringing the total up to well over a thousand. The area is a fascinating one for botanical study, embracing, as it does, 1533 square miles of mountain territory of extreme ruggedness, and offering a variety of plant habitats ranging through four life zones, from plains to arctic-alpine summits and from sphagnum bogs to arid mountain sides. Many additional species would be included if the park boundaries were extended a few miles eastward into the plains. While the region has been visited by many botanists of note, the western side, north of Lake McDonald, botanically speaking is almost virgin territory.

The following notes are based on observations and collections extending over the five summers from 1930-1934.

* PHEGOPTERIS POLYPODIOIDES Fée. Growing in crevices in dripping cliffs along the trail to Sperry Glacier above Sperry Chalets. August 1, 1931. No. 2080.

Standley states, in reference to *Phegopteris Dryopteris* (L.) Fée, "this species has been incorrectly reported from the park as *Phegopteris polypodioides* Fée." The writer is unable to determine who reported the latter species, but there is certainly no mistaking the identity of the two. Within the region *P. Dryopteris* is a common fern in moist coniferous woods at middle elevations where it is to be found growing with *Tiarella unifoliata* Hook. and *Clintonia uniflora* (Schult.) Kunth, while *P. polypodioides* seems to prefer the dolomitic cliffs at higher elevations in company with *Adiantum pedatum* L. var. *aleuticum* Rupr.

*CYSTOPTERIS MONTANA (Lam.) Bernh. Moist ledges, Gunsight Pass. Collected by Mr. H. G. Rugg; July, 1932.

¹ Standley, Paul C. Flora of Glacier National Park, Montana. Contrib. U. S. Nat. Herb. 22, part 5: 235-438. 1921.

² Graff, Paul W. Unreported Plants from Glacier National Park. Bull. Torrey Bot. Club 49: 175-181. 1922. 32 species.

Cook, Nettie M. and Harold St. John. New Records for Glacier Park. Mimeographed list. Spokane, Wash. 1923. 14 species.

Maguire, Bassett. Distribution Notes Concerning certain Plants of Glacier National Park, Montana. RHODORA 36: 305-308. 1934. 22 species.

Nelson, Aven. Rocky Mountain Herbarium Studies II. American Jour. Bot. 21: 573-582. 1934. *Arnica Maguirei* and *A. trina* new species from Glacier Park.

* Not reported from the park by Standley or subsequent authors.

This interesting alpine and arctic fern is listed by Eaton as "certainly one of the very rarest of North American ferns." It has apparently been previously reported in the United States only from Colorado.

LARIX LYALLII Parl.

This endemic of the high mountain regions of the northwest is decidedly uncommon within the park. Concerning it Standley writes, "said to grow in a few places about timberline, but not seen by the writer." Maguire reports, "a fine grove at timberline, Preston Park." The present writer will never forget the arduous climb to the summit of the unfrequented Boulder Pass in the extreme northwestern corner of the park. After climbing above all but the most stalwart and matted arboreal alpines (*Abies lasiocarpa*, *Picea Engelmanni*, and *Pinus albicaulis*) the trail pauses for a brief spell on the margin of a great ice-scoured basin of dark red argillite, and there, sheltered from the chilling blasts, grows a beautiful grove of the mountain larch, sturdy and short and remarkably slow growing, distinguished at once from the lowland *Larix occidentalis* Nutt. by its stockier build and the very pubescent new growth.

SALIX COMMUTATA Bebb var. DENUDATA Bebb. Meadows, Iceberg Lake. July 21, 1930; No. 923. Reported previously only by Maguire from Gunsight Lake.

LEWISIA PYGMAEA (Gray) Robins. (*Oreobroma pygmaea* (A. Gray) Howell, of Standley). Collected by Umbach (Standley) at east entrance on creek bank. Collected by the writer in rocky alpine meadows near Sperry Glacier. July 10, 1931; no. 2125.

RANUNCULUS AQUATILIS L. var. CAPILLACEUS D. C. Probably the plant reported by Standley under *Batrachium Drouetii* (Schultz) Nyman.

PAPAVER PYGMAEUM Rydb.

This diminutive little poppy of the high ridges and moraines is seldom to be found in any abundance. The writer found a single plant on the moraine of Blackfoot Glacier and perhaps fifteen or twenty individuals within a few square yards on the moraine of Sexton Glacier. Rydberg's original description¹ states that the petals are yellow, but all the specimens seen agree rather with Standley's description, "petals orange with a yellow spot at the base."

*SMELOWSKIA LOBATA Rydb. Rocky alpine meadow east of summit of Logan Pass. July 20, 1932; no. 2540. Rocky alpine meadow near summit, Siyeh Pass. July 15, 1934; no. 3296.

¹ Rydberg, P. A. Studies in the Rocky Mountain Flora VII. Bull. Torrey Bot. Club 29: 145-160. 1902.

In the latter location the plant was growing with or at a slightly higher elevation than *S. americana* Rydb., and is later flowering than this species.

PHYSARIA DIDYMOCARPA (Hook.) A. Gray. Collected on a dry talus slope at 6500 feet elevation in Baring Basin where it grew with *Eriogonum depressum* (Blankinship) Rydb.

The *Physaria* is characteristically a plains species, but, like many another, is quite at home on dry open mountainsides at high elevations.

PARNASSIA PALUSTRIS L. Previously reported from a wet thicket at St. Marys. Collected at Mud Lake and in boggy ground at the lower end of Lower Kintla Lake.

Probably fairly common in low ground on the west slope.

*TELLIMA GRANDIFLORA (Pursh) Dougl. Under bushes along Granite Park fire trail an eighth of a mile from the Going-to-the-Sun Highway. June 25, 1934; no. 3224.

A diligent search failed to reveal more than a single plant. This is apparently the easternmost station for this Pacific slope species.

*PHILADELPHUS LEWISII Pursh. Growing in abundance on a dry, rocky hillside along the highway, one mile east of Going-to-the-Sun Chalets. July 16, 1934; no. 3275.

HYPERICUM SCOULERI Hook. Under bushes near Going-to-the-Sun Chalets. July 24, 1933; no 2955.

The plants were taller and more lax than the usual form characteristic of the alpine meadows and open slopes.

EPILOBIUM ANGUSTIFOLIUM L. var. PLATYPHYLLUM (Daniels) Fernald.¹

The fireweed within the park certainly attains the perfection of its development at lower levels along the plains margin and in burned over areas, but it is also found in great abundance in meadows within the Hudsonian zone. By August first it is, in many of these higher meadows, the dominant plant. Prof. Fernald, in his discussion of possible hybridization between *Epilobium latifolium* L. and *E. angustifolium*² states, "that imperfection of pollen in this species cannot be asserted to be due to hybridization with *E. latifolium* should be apparent from the vast distances (often 100 to 1000 miles and sometimes overseas) between the supposed hybrid offspring and the nearest colonies of one of the assumed parents." However, in Glacier Park the two species in the vicinity of Logan Pass and elsewhere do grow within a few feet of one another. Moreover, as Standley has

¹ Fernald, M. L. American Variations of *Epilobium*, Section *Chamaenerion*. RHODORA 20: 1-10. 1918.

² Fernald, l. c. 10.

pointed out, *E. latifolium* is found occasionally at low altitudes growing along stream margins.¹

**CORNUS STOLONIFERA* Michx. var. *BAILEYI* (Coulter & Evans) A. A. Drescher² (*C. Baileyi* Coulter & Evans of authors).

Although Standley reports only *C. stolonifera* it has already been pointed out³ that the common form west of the divide is not *C. stolonifera* but is apparently referable to *C. stolonifera* var. *Baileyi*. On the other hand all the east side collections made by the writer are typical *C. stolonifera*.

**PHYLLODOCE HYBRIDA* Rydb. Probably a hybrid between *P. empetriformis* (Smith) Don and *P. glandulifera* (Hook.) Coville. Especially abundant at the summit of Logan Pass, growing with the two parent species.

LEDUM GLANDULOSUM Nutt. In spongy ground near the summit of Boulder Pass. Sept. 8, 1931; no. 3321.

Reported by Standley as a lowland species; here growing at about 7500 feet.

**DODECATHEON ACUMINATUM* Rydb. Wet mossy bank, Virginia Falls, Upper St. Mary's Valley. August 13, 1934; no. 3317.

PINGUICULA VULGARIS L. Wet spongy bank near Hidden Lake at 7000 feet elevation. July 30, 1932; no. 2589.

**OROBANCHE SEDI* (Suksd.) Fernald.⁴ Grinnell Glacier Trail, 5500 feet elevation. July 13, 1930; no. 787. In moist rock crevices, parasitic on *Thalictrum megacarpum* Torr. Mt. Brown; July 4, 1931.

ERIGERON LANATUS Hook. Fairly abundant near the summit of Siyeh Pass.

In all plants seen by the writer the rays were white.

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ELEOCHARIS CARIBAEA, VAR. *DISPAR* IN ONTARIO.—While working over a collection of plants presented to the Herbarium of the University of Toronto by Dr. R. F. Cain, the writer was pleased to find a

¹ In the discussion cited, Fernald merely pointed out that certain individuals which had been designated, in the paper criticized, as hybrids of *Epilobium angustifolium* and *E. latifolium*, merely because of their imperfect pollen, were growing 100 to 1000 miles away from the nearest colonies of the latter species. In much of the limited range of *E. latifolium*, *E. angustifolium* is present; from much of the extensive area of *E. angustifolium*, *E. latifolium* is absent.—EDS.

² Drescher, A. A. Preliminary Reports on the Flora of Wisconsin XXII. Cornaceae. Trans. Wisconsin Acad. Sciences, Arts, and Letters 28: 187-190. 1933.

³ Blankinship, J. W. Supplement to the Flora of Montana. Montana Agric. Coll. Sci. Studies 1: 32-109. 1905.

⁴ Not *O. uniflora* L. See Fernald, M. L. Two Summers of Botanizing in Newfoundland. RHODORA 28: 236. 1926.